NRC Form 374
(5-84)

U.S. NUCLEAR REGULATORY COMMISSION

MATERIALS LICENSE

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93-438), and Title 10, Code of Federal Regulations, Chapter I, Parts 30, 31, 32, 33, 34, 35, 40 and 70, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess, and transfer byproduct, source, and special nuclear material designated below; to use such material for the purpose(s) and at the place(s) designated below; to deliver or transfer such material to persons authorized to receive it in accordance with the regulations of the applicable Part(s). This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and is subject to all applicable rules, regulations and orders of the Nuclear Regulatory Commission now or hereafter in effect and to any conditions specified below.

Licensee	
1. Fansteel, Inc.	3. License number: SMB-911, revised in its entirety
2. Number One Tantalum Place North Chicago, Illinois 60064	4. Expiration date: July 31, 1986
	5. Docket or Reference No.: 40-7580

6. Byproduct, source, and/or special nuclear material	7. Chemical and/or physical form	8. Maximum amount that licensee may possess at any one time under this license
A. Natural uranium	A. Tin slags, ores, ore concentrates, and process residues	A. 30,000 kg uranium
B. Natural thorium	B. Tin slags, ores, ore concentrates, and process residues	B. 67,000 kg thorium

9. Authorized use: For use in accordance with statements, representations, and conditions contained in Part 1 (Chapters 1 through 5), Part 2 (paragraphs 5 and 6 on page 6-5 and Sections 6.3 and 6.4 in Chapter 6), and the Radiation Safety Manual (Sections 3.1, 3.2, and 3.3) of the revised application dated October 16, 1987, (submitted by letter dated November 3, 1987); and supplements dated April 20, 1988; and February 28 and June 22, 1989.

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10. Authorized place of use: The licensee's existing facilities at Muskogee, Oklahoma.

11. Notwithstanding the education requirement in Section 2.2, Part 1, of the revised application, the Plant Radiation Safety Officer (PRSO) and Alternate PRSO shall each possess a bachelor's degree in the biological or physical sciences, engineering, or industrial hygiene.

12. The minutes of the Radiation Safety Committee meetings shall be submitted, as a minimum, to the Committee members.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number: SMB-911, revised in its entirety

Docket or Reference number: 40-7580

FEB 1 1990

13. In addition to its other safety oversight functions, the Radiation Safety Committee shall review and evaluate, at least every 12 months, personnel exposure data, bioassay results, unusual occurrences, airborne radioactivity levels, effluent releases, and environmental monitoring to determine the following:

    a. If there are any upward trends developing in personnel exposures for identifiable categories of workers or types of operations, effluents, or concentrations of effluents in environmental samples.

    b. If exposures and effluents might be lowered in accordance with the ALARA concept.

    c. If equipment for effluent and exposure control is being properly used, maintained, and inspected.

14. Prior to implementation, new and revised operating procedures for activities involving licensed material shall be evaluated by the Radiation Safety Committee and approved by the Plant General Manager and the Plant Radiation Safety Officer. Operating procedures shall be reviewed for adequacy at least every 2 years by the Radiation Safety Committee.

15. By July 31, 1990, the licensee shall develop and implement written procedures for radiation safety activities required by the license.

16. Notwithstanding the inspection frequency in Section 2.7, Part 1, of the revised application, radiation safety inspections of facility operations shall be performed and documented quarterly by the PRSO or Alternate PRSO.

17. By April 30, 1990, the licensee shall develop and implement a formal procedure for the timely review and completion of corrective actions for deficiencies identified during audits of the radiation safety program and inspections of facility operations.

18. The licensee shall administer a written test to plant personnel to determine the effectiveness of the initial and refresher radiation safety training and maintain records of the tests and test results.

19. Notwithstanding Section 3.5, Part 1, of the revised application, the licensee shall (1) perform continuous, representative sampling of individuals' breathing air when measurements of concentrations of radioactive materials in air are necessary to demonstrate compliance with 10 CFR 20.103; (2) determine the average intake of radioactive materials by inhalation in accordance with 10 CFR 20.103(a)(1); (3) evaluate the cause and take corrective actions to prevent reoccurrence if an air sample indicates that the gross alpha activity in an individual's breathing air exceeds the maximum permissible concentration (MPC) for natural thorium (6×10^{-11} microcuries/milliliter) or 25 percent of 40 MPC-hours during any 7 consecutive days.

20. In addition to the protective clothing requirements in Section 3.7, Part 1, of the revised application, the licensee shall require the use of protective clothing for the hands of individuals who handle ores, tin slags, or process residues containing radioactive material.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number
SMB-911, revised in its entirety

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FEB 1 1990

21. Notwithstanding Section 3.9, Part 1, of the revised application, for individuals required to be monitored in accordance with 10 CFR 20.103, the licensee shall, as a minimum, collect and evaluate on a quarterly basis 24-hour urine and fecal samples to assess individuals' whole body depositions of uranium and thorium. The samples shall be collected in an area free of contamination and after the individual has been removed from the contaminated work area for 2 days.

22. Prior to the release of facilities and equipment for unrestricted use, the facilities and equipment shall be decontaminated in accordance with the enclosed "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material," dated August 1987.

23. Notwithstanding Section 4.4, Part 1, of the revised application, the licensee shall investigate and take corrective actions when the concentration of radioactive material in liquid effluents exceeds 10 percent of the concentration found in 10 CFR Part 20, Appendix B, Table II.

24. By July 31, 1990, the licensee shall develop and implement a continuous stack monitoring program that will provide measurements of radioactivity released in air effluents when the plant is operating.

25. In accordance with the letter dated January 24, 1990, the licensee shall submit by August 1, 1990, a decommissioning plan for NRC approval.

FOR THE NUCLEAR REGULATORY COMMISSION

Original Signed By:

Date: FEB 1 1990

By: Glen L. Sjoblom
Division of Industrial and
Medical Nuclear Safety
Washington, DC 20555

WRP (2/1/90)
GLS 2-1-90
VLT 2-1-90
2/2/90

Enclosure: As stated